A Study on Eating Habits and Risk Factors Associated with Obesity among Adolescence Studying in Private Schools in District Pulwama Kashmir

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Abstract: Obesity is a condition of the body in which it has excess of body fats. Obesity is directly associated with life-expectancy, public and private expenditure on health and life risking diseases including cardiovascular diseases, hyper tension & liver diseases. Obesity has a harmful effect on labor outcomes which reduces the efficiency and productivity of labor. Therefore the present study was conducted to have an idea regarding eating habits and risk factors which are associated with obesity among adolescence studying in private schools in district Pulwama. A sample of 200 respondents was collected from the students of private institutes of Pampore Pulwama Kashmir based on convenience sampling technique. The information was collected through proforma and an interview method. Descriptive statistics was used to assess the eating habits and risk factors that are associated with obesity in Adolescence. The findings revealed that females are more obese than males from rural areas, 62.66% boys and 71.2% girls had over weight when compared it with standard BMI classification and had nuclear type of family system. 53.33% boys and 43.2% girls said that less physical activity and 20% boys and 25.6% girls said that excess energy intake are responsible factors of obesity. The study revealed that consumption pattern of junk foods, street foods, non-vegetarian type of food are prevalent in majority.

Keywords: Obesity, Overweight, Chi square, Physical activity, Adolescence.

1. INTRODUCTION

Obesity is a condition of excess adipose tissue relative to lean body mass in the body to more than 20 percent of the desirable weight. It reflects a long term imbalance between energy intake and energy expenditure. [1] World Health Organization has defined overweight and obesity as abnormal or excessive accumulation of fat that may impair health. Recent WHO global estimates indicate that in 2014 more than 1.9 billion adults, 18 years and older, were overweight. Of these over 600 million were obese. It is estimated that 200 million school-aged children worldwide are overweight, of which 40-50 million are obese. [2] Various studies conducted in India during last decade have revealed a rising trend in prevalence of overweight and obesity among children and adolescents. [3, 4]. Obesity is the second leading cause of preventable deaths; smoking is the first. Obesity predisposes many health problems, including high blood pressure, heart disease, diabetes, stroke, osteoarthritis of weight bearing bones and varicose veins, sleep apnea, premature death, cancer, gallbladder disease etc. The world wide trend of obesity is analyzed by Wang & Lob stein [5].Exercise is the most widely believed and practiced ways of reducing obesity. Maitra, P., & Sharma, A [6]. They found that exercise has statistically significant and negative effect on obesity. Mo-suwan et al [7] conducted a research on 292 school going children to analyze the effect of exercise on obesity. Their results were different for different sex. Shaw (2006) conducted a research on literature on 43 studies with a total sample of some 3476 respondents. Based on literature survey found that exercise reduces obesity and results are stronger when exercise is attached to change in diet plan [8]. Studies have shown that people who eat out more number of times are susceptible for obesity. Adolescents are exposed to high calorie, high
fat foods that are readily available heavily advertised and delicious. Skipping meals at home and consuming foods that are junk foods also leads to obesity. [9] Environmental factors, lifestyle preferences, and cultural environment play pivotal roles in the rising prevalence of obesity worldwide. In general, overweight and obesity are assumed to be the results of an increase in caloric and fat intake. On the other hand, there are supporting evidence that excessive sugar intake by soft drink, increased portion size, and steady decline in physical activity have been playing major roles in the rising rates of obesity all around the world. Consequently, both over-consumption of calories and reduced physical activity are involved in childhood obesity. Obesity is rapidly increasing in our community and one cannot deny facts. Efforts to eradicate or control the obesity require involvement of many resources, health organizations and provide appropriate education for the youth at educational institutes. The present study has been undertaken to identify “eating habits and risk factors that are associated with obesity among Adolescence Studying in Private Schools in District Pulwama Kashmir”.

2. METHODOLOGY

A case-control study was conducted among students of standards 8th to 10th in a school in District Pulwama. The study design was a cross-sectional survey conducted at Private Institutes of Pampore Pulwama Kashmir during the year 2015. A sample of 200 students was taken. A structured close ended questionnaire was used to collect the information from the students. Recruited students were asked to fill out a questionnaire related to research topic. They were given instructions on how to fill out the questionnaire fairly. After taking permission from the institute the questionnaires were distributed randomly to the students. After filling out the questionnaire, anthropometric measurements were measured, such as weight and height. Weight was measured using a digital weighing scale and height with a wall-mounted stadiometer. The Body mass index was calculated using the formula proposed by Quetelet (10) BMI = weight (kg) / height (meter)² were considered for assessing the degree of obesity. The data were compiled in Excel spreadsheet and analyzed by using SPSS software.

Results: - The present study has used primary data collected from 200 students of Private institutes of Pampore Pulwama Kashmir. The sample characteristics of the studied respondents are described in Table 1.

Table 1. Socio- Demographic Characteristics of studied respondents

<table>
<thead>
<tr>
<th>S.No</th>
<th>Characteristics</th>
<th>Boys (%) N =75</th>
<th>Girls (%) N = 125</th>
<th>Chi square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban</td>
<td>33 (44.0)</td>
<td>57 (45.6)</td>
<td>0.048</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>42 (56.0)</td>
<td>68 (54.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 years</td>
<td>18 (24.0)</td>
<td>32 (25.6)</td>
<td>1.550</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>15 years</td>
<td>20 (26.66)</td>
<td>42 (33.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16 years</td>
<td>37 (49.33)</td>
<td>51 (40.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Monthly family income (Rs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3000-5000</td>
<td>12 (16.0)</td>
<td>9 (7.2)</td>
<td>6.685</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td></td>
<td>5001-10000</td>
<td>39 (52.0)</td>
<td>86 (68.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above 10000</td>
<td>24 (32.0)</td>
<td>30 (24.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Type of family</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nuclear</td>
<td>65 (86.66)</td>
<td>93 (74.4)</td>
<td>4.252</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td></td>
<td>Joint</td>
<td>10 (13.33)</td>
<td>32 (25.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>BMI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;18.5 (underweight)</td>
<td>5 (6.66)</td>
<td>14 (11.2)</td>
<td>5.073</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>18.5-24.9 (normal)</td>
<td>23 (30.66)</td>
<td>22 (17.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 25 (overweight)</td>
<td>47 (62.66)</td>
<td>89 (71.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Sleeping time (Hours)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>42 (56.0)</td>
<td>64 (51.2)</td>
<td>1.0342</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>18 (24.0)</td>
<td>31 (24.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>10 (13.33)</td>
<td>23 (18.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>5 (6.66)</td>
<td>7 (5.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is evident from the Table 1 that majority of them (56% boys and 54.4% girls) were residing in rural areas and remaining (44% boys and 45.6% girls) hailing from urban areas (P>0.05). The ratio of male
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and female were 37.5% and 62.5% respectively. The obesity is more common (52% boys and 68.8% girls) in the economic group of 5001-10000, 32% boys and 24% girls were from the economic group of above 10000 while remaining 16% boys and 7.2% girls from the economic group of 3000-5000. It was observed that majority of them in both groups had nuclear type of family system. From the sample of 200 respondents, 17.86% (6.66% boys & 11.2% girls) were underweight, 48.26% (30.66% boys & 17.6 % girls) were normal weight while majority 62.66% boys and 71.2% girls were overweight (P >0.05). It was found that the obesity is more common in those respondents who sleep for only 5 hours followed by 6 hours of sleeping. Statistically it was observed that there is a significant between monthly income and type of family of male and female respondents (P<0.05)

Table 2. Correlation between various study variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Age</th>
<th>Residence</th>
<th>Gender</th>
<th>Income</th>
<th>Family Type</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residence</td>
<td>0.289</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.045</td>
<td>0.012</td>
<td></td>
<td>-0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>0.218**</td>
<td>0.086</td>
<td>-0.214**</td>
<td>0.045</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Type</td>
<td>0.121</td>
<td>0.041</td>
<td>-0.011</td>
<td>-0.002</td>
<td>-0.031</td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>0.059</td>
<td>0.021</td>
<td>-0.048</td>
<td>-0.004</td>
<td>0.077</td>
<td>0.126</td>
</tr>
<tr>
<td>Sleeping Hours</td>
<td>0.002</td>
<td>-0.068</td>
<td>-0.048</td>
<td>-0.004</td>
<td>0.077</td>
<td></td>
</tr>
</tbody>
</table>

**= Significant at1% level of significance

The data presented in Table 2 shows the correlation between various study variables. It has been observed that residence, gender & income of respondents are negatively correlated with their sleeping hours. Further it was observed that BMI and age of respondents has positive correlation.

Table 3. Causative agents of Obesity

<table>
<thead>
<tr>
<th>Variables</th>
<th>Boys (%)</th>
<th>Girls (%)</th>
<th>Chi square</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reason of obesity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Physical activity</td>
<td>40 (53.33)</td>
<td>54 (43.2)</td>
<td>2.390</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Excess energy intake</td>
<td>15 (20)</td>
<td>32 (25.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genetic and social factors</td>
<td>10 (13.33)</td>
<td>23 (18.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unhealthy eating patterns</td>
<td>10 (13.33)</td>
<td>16 (12.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment status of mother</td>
<td></td>
<td></td>
<td>0.10715</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Employed</td>
<td>68 (90.6)</td>
<td>115 (92.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Employed</td>
<td>7 (9.33)</td>
<td>10 (8.0)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As per Table 3 It has been observed that 53.33% boys and 43.2% girls said that less physical activity is the cause of obesity. While 20% boys and 25.6% girls said that excess energy intake is the reason of obesity. 13.33 % boys and 12.8% girls said that reason of obesity is unhealthy eating pattern, while 13.33% boys and 18.4% girls said that genetic and social factors is the reason of obesity. It was found that majority of the respondents said that working mother is the main responsible factor for causing obesity in children. Statistically it was observed that there is non-significant difference reason of obesity & employment status of their mothers (P>0.05).

Fig 1:- Type of diet

20.75% Vegetarian
79.25% Non-vegetarian
As per Fig 1 it was observed that majority (79.25%) of them were non vegetarian and remaining 920.75% respondents were vegetarian.

As per Fig 2 it was observed that 89% respondents had habit of taking irregular meals while only 11% had regular habit of taking meals at proper time.

<table>
<thead>
<tr>
<th>Table 4. Distribution of Respondents as per Dietary Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>History of Consumption of Junk foods</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chi square= 2.563, P-value &gt;0.05</td>
</tr>
<tr>
<td>Time spent on watching TV, Computer, and Chatting on mobile phone</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chi square= 22.739, P-value &gt;0.05</td>
</tr>
<tr>
<td>Consumption Pattern of type of tea</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chi square= 11.325, P-value &lt;0.05</td>
</tr>
<tr>
<td>History of Consumption of fried foods</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chi square= 0.140, P-value &gt;0.05</td>
</tr>
<tr>
<td>Eating snacks or meals while watching TV</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chi square= 0.016, P-value &gt;0.05</td>
</tr>
<tr>
<td>Mode of conveyance to school</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chi square= 12.713, P-value &lt;0.05</td>
</tr>
<tr>
<td>Knowledge about ill effects of obesity on health</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chi square = 1.224, P-value &gt;0.05</td>
</tr>
<tr>
<td>Is eating Snacks causative factor</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>To some extent</td>
</tr>
<tr>
<td>Chi square = 12.212, P-value &gt;0.05</td>
</tr>
<tr>
<td>Restaurant Meal</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>To some extent</td>
</tr>
<tr>
<td>Chi square = 0.034, P-value &gt;0.05</td>
</tr>
<tr>
<td>Dietary pattern</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>To some extent</td>
</tr>
<tr>
<td>Chi square = 6.806, P-value &lt;0.05</td>
</tr>
</tbody>
</table>
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Careful perusal of the Table 4 it was observed that 75 respondents had habit of taking junk foods in daily routine which is the main cause of the disease while only 25 respondents were not taking junk foods. It was observed that majority 144 respondents were spent most of their time on watching T.V, chatting on mobile phones and on computer. Further it was observed that 133 respondents were taking sugar tea which provides more calories and cause obesity in these respondents due to negative balance of energy intake. Further it was observed that all of them were taking street foods which are dense in fats especially Trans fatty acids. It was also observed that majority said that they take their snacks while watching T.V. It was also observed that 135 of the subjects were using vehicle as a mode of transport to school and only 58 respondents go by foot to school and remaining 7 boys use cycle as a mean of transport to school. Majority (129) respondents were not aware regarding the ill effects of the obesity while only 71 had knowledge of this disease. Out of 200 respondents 86.66% boys & 68% girls said that snacks eating are also causing obesity, 10.66% boys & 12.8% girls said that snacks eating have no effect. While remaining 2.66% boys & 19.2% girls said that to some extent snacking cause obesity. Majority of the respondents believe that the restaurant meal is causing factor of obesity. Further it was observed that 69.33 % boys & 73.6% girls said that present dietary pattern of young population cause obesity.25.33% boys & 26.4% girls said that present diet pattern does not cause obesity. While 5.33 % boys said that present dietary pattern cause obesity to some extent. The main reasons of such dietary pattern are working parents. It was observed that statistically there is a significant difference between mode of conveyance to school and type of tea of respondents (P<0.05).

3. DISCUSSION

This study of Eating Habits and Risk Factors Associated with Obesity in Adolescence of District Pulwama Kashmir has several limitations. The sample was taken only from private Institutes. Furthermore, students attending these institutes are usually of high socio-economic standards; therefore, samples from both government and private institutes may provide a more inclusive picture of students taking into consideration religion and socio-economic status. People who live in rural areas are at high risk of obesity and those who do exercise regularly are in the safe zone. Our results are in line with the earlier literature in this regard. In a study [12] conducted in Chennai, the researchers reported an overall prevalence of obesity/overweight as 5.2% and 23.8% among adolescent studies in government and private schools respectively, using International Obesity Task Force Criteria. [11] Ramachandran et al conducted a study [13] among urban adolescent school children, and reported prevalence of overweight as 17.8% among boys, and 15.8% among girls. Other studies [14-17] conducted in India has also proved that overweight/obesity is significant public health problem among adolescents, and the trend is on the rise. The study revealed that irregularity of meals, frequent consumption of junk food and lack of parental supervision as risk factors for overweight/obesity among the study population. Similarly, lack of exercise as identified by infrequent outdoor games, conveyance to school by motorized vehicle and longer hours of inactivity (TV watching, sleep) were also associated with overweight/obesity. These finding of the study were related to other recent studies conducted in India which also revealed association of overweight/obesity with longer hours of TV watching, [18] higher consumption of junk food [19] and less participation in outdoor games. [20] Significant association of overweight/obese adolescents with working mothers as revealed in this study may be confounded due to higher family income and lack of parental supervision.

4. CONCLUSION

The main objective of this study was to investigate the eating habits and risk factors associated with obesity in adolescence of District Pulwama Kashmir. The sample size taken for this study from school students is 200. Different statistical techniques were used. This study shows that obesity is more prevalent in females residing in rural areas from 50001-10000 socio economic group and had nuclear type of family type. The main cause of the disease was lack of physical activity and majority of them were spend most of the time in watching T.V. They think that working mothers are responsible for causing obesity in adolescence. Public health experts, educationists and school authorities should join hands to ensure that today’s young adopts healthy life styles so that the humanity marches towards positive health along with economic growth. The mass media and electronic media can play the role to raise the awareness regarding this burning issue.
REFERENCES


